

EPA Review Comments and Responses
Fish Tissue Field Sampling Plan
Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Portland Harbor Superfund Site
Dated January 18, 2018

EPA Comments dated February 21, 2018

Pre-RD AOC Group Responses in Blue Font, Italics dated March 16, 2018

Following are the United States Environmental Protection Agency's (EPA's) comments on the document titled Agency Review Draft *Fish Tissue Field Sampling Plan Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland Harbor Superfund Site* (herein referred to as the FSP) prepared by AECOM Technical Services (AECOM) and Geosyntec Consultants, Inc. (Geosyntec) on behalf of Portland Harbor Pre-Remedial Design (Pre-RD) Group. The FSP was prepared to support the fish tissue sampling efforts outlined in the *Pre-Remedial Design Investigation Studies Work Plan* ([PDI Work Plan] Geosyntec 2017).

EPA understands the purpose of the FSP is to describe the work activities for collecting whole body fish tissue samples, specifically smallmouth bass (SMB; *Micropterus dolomieu*), throughout the Portland Harbor Superfund Site (Site) and upstream of the Site to characterize current concentrations of Record of Decision (ROD) Table 17 contaminants of concern (COCs). The purpose of EPA's review is to assess if the FSP complies with the objectives of the fish tissue sampling described in the PDI Work Plan.

EPA's comments are categorized as "Primary," which identify concerns that must be resolved to achieve the objective; "To Be Considered," which, if addressed or resolved, would reduce uncertainty, improve confidence in the document's conclusions, and/or best support the objectives; and "Matters of Style," which substantially or adversely affect the presentation or understanding of the technical information provided in the document.

Primary Comments

1. Section 1.2, page 2: This section, Project Overview, states that whole body SMB will be collected to characterize current concentrations of ROD Table 17 COCs. However, Section 5 Laboratory Analysis indicates dioxins/furans will be analyzed as 2,3,7,8-tetrachlorodibenzodioxin (TCDD) equivalents (eq). Cleanup levels for specific dioxin/furan congeners, rather than a 2,3,7,8-TCDD eq, are listed in Table 17 of the ROD for fish tissue. The revised FSP must note that the analysis will focus on dioxin/furan congeners and that the analytical laboratory will report all dioxin/furan congeners.

Pre-RD AOC Group Response: The FSP will be revised to note that the analytical laboratory will report dioxin/furan congeners.

2. Section 1.2, pages 1-2: Section 1.2 outlines that this study builds on prior SMB sampling in the PHSS, including the 2002 and 2007 RI, the 2011 program and the 2012 program, and then makes the statement that "Fish tissue is one line of evidence for monitored natural recovery." This data use statement needs to be removed, or replaced with a reference to the PDI Work Plan objectives for fish tissue data uses.

Pre-RD AOC Group Response: The FSP will be revised to delete the statement "Fish tissue is one line of evidence for monitored natural recovery."

3. Section 2.3, page 3: The revised FSP must be consistent with the descriptions in Section 3.2.3 of the PDI Work Plan and Section 4.1.6 of the quality assurance project plan ([QAPP] AECOM and Geosyntec 2018a). To be consistent with the PDI Work Plan, the revised FSP must describe how the Site will be divided into four

segments, with a target of collecting 20 to 30 SMB from each segment with samples collected from the east and west sides of each segment.

Pre-RD AOC Group Response: The FSP will be revised to add the following text in Section 2.3: “The sample design targets 20 to 30 samples in each of the four segments of the PHSS: river mile (RM) 1.9 to 5 (Segment 4); RM 5 to 7.5 (Segment 3); RM 7.5 to 9 (Segment 2); and RM 9 to 11.8 (Segment 1) with samples collected from the east and west sides of the river.”

4. Section 2.4, page 3: This section, Specimen Lengths, states, “SMB larger than 355 mm may be retained for archival at the selected laboratory for possible future analysis.” The revised FSP must provide additional detail regarding archiving the larger fish and note that if insufficient numbers of fish are obtained from the target size range, larger fish of up to 18 inches (457 millimeters) will be accepted if necessary based on consultation with EPA. This document must also clarify whether the fish will be measured in millimeters or inches. The sampling equipment also does not specify the units, but the Specimen Tally and Location Form is in millimeters.

Pre-RD AOC Group Response: If there are insufficient numbers of SMB collected in the target size range, larger SMB of up to 460 millimeters will be accepted if necessary based on consultation with EPA. Specimens will be measured in millimeters, as shown in Appendix B, Field Forms: Specimen Tally and Location Form. This information will be added to Section 2.4 of the FSP.

5. Section 3.1, page 4, paragraph 4: This section states, “The team is required to have a qualified ESA fisheries biologist to identify and document any incidental catch of ESA-listed species.” The revised fish tissue FSP must describe the procedures for reporting incidental catch of Endangered Species Act-listed species to the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). In addition, consistent with the *Sampling and Analysis Plan, Portland Harbor 2011 Baseline Smallmouth Bass Tissue Study* (GSI 2011), the revised FSP must state that if any federally listed threatened or endangered salmonid species is caught via angling, all fishing efforts will be halted in that sampling area. The revised FSP must state that EPA, NMFS and USFWS will be contacted to determine how to proceed.

Pre-RD AOC Group Response: We do not agree that in the event an ESA salmonid species is caught, EPA, NMFS, and USFWS will be contacted to determine how to proceed. This approach could lead to unnecessary delays. Consistent with the prior SMB studies, fishing in that area will be halted, the catch recorded, and the sampling team will move to a different location. The appropriate EPA, NMFS, and USFWS contacts will be notified by email at the end of the sampling day of the incidental ESA by-catch. The following text will be added in a new paragraph at the end of Section 4.3.1, Angling:

“If ESA-listed species are caught during angling, all fishing efforts will stop in that sampling area and the field crew will move to a different sampling area, as directed by the ESA fisheries biologist onboard. The species and specimen health will be recorded on the tally form as described in Section 4.3.4, Field Sample Handling, and the fish will be returned to the water as quickly as possible. NMFS, EPA, and USFWS will be notified by email at the end of the sampling day. The procedures for reporting incidental catch of ESA-listed species will be confirmed during pre-sampling coordination with NMFS.”

Typically, annual reports are due to NMFS and Oregon Department of Fish and Wildlife (ODFW) by December 31 (or by the end of the calendar year in which sampling is completed). Reports are completed through the National Oceanic and Atmospheric Administration (NOAA) website. Information required to complete the report includes

the species and numbers actually handled, explanations of any deviations from expected activities or number of fish handled, and any preliminary or final analyses available.

6. Section 4.3.1, page 6: The last sentence "...and to record the GPS coordinates of the collection site." Should be changed to "and to record the GPS coordinates of the capture location of each fish electronically and in the sampling records." Read loosely, the original text could permit the specifying coordinates of the river generally instead of where the fish were harvested.

Pre-RD AOC Group Response: The FSP will be revised to add "and capture location of each fish electronically and in the sampling records."

7. Section 4.3.3, page 7: This section, Contingency Plan for Collecting Samples, states, "If no target-sized SMB are captured within 30 minutes at a single location, the field crew will move to another sampling location." The revised FSP must include a place to record the fishing effort duration on the field form in Appendix B.

Pre-RD AOC Group Response: A new field form in Appendix B includes a place to record the fishing effort duration (also see response to comment 9).

8. Section 4.3.3, page 7: This section, Contingency Plan for Collecting Samples, states, "Samples will be assigned the sample identification (ID) of the closest planned sample station." It is unclear how the sample stations will be demarcated such that the fish collectors know which is the closest planned sample station. The revised FSP must explain how the fish collectors will determine the closest planned sample station. Additionally, the revised FSP must explain how the fish collectors will determine if the planned number of samples have been collected from the sample stations, segments (as described in the QAPP; see Comment #2) and from the east and west sides of the river.

Pre-RD AOC Group Response: Added "Handheld GPS units will be pre-programmed with sampling target locations as shown in Table 1 of the FSP. Anglers will use their current location as displayed on the handheld GPS to determine the closest planned sample location. The planned number of samples relative to sample stations, segment, and east or west sides of the river will be tallied in the logbook daily. Each day, the spatial data will be downloaded and post-processed as described in the Data Quality Management Plan. The tally of sampling locations will be updated if needed and communicated to the field team daily."

9. Section 4.3.4, page 7: Field Sample Handling describes the data to be recorded for the retained fish. The revised FSP must include a requirement to record, at a minimum, the number and species of all fish caught during the sampling regardless of species. The number and length of SMB that did not meet size requirements for sampling also must be recorded. The field form in Appendix B must be revised accordingly. This section must also state that the fish samples will be wrapped in foil in accordance with SOP 04, and whether the complete sample handling protocol will be performed on the boat for fish caught there, or whether the fish will be taken back to the larger vessel.

Pre-RD AOC Group Response: Section 4.3.4 will be revised to state that the number and species of all fish caught during the sampling will be recorded. Appendix B, Field Forms, will be updated to include a new form called "Fishing Effort and Tally Form" to record fish that were caught but not collected for various reasons (incorrect species or size) and to document fishing start-stop times. Section 4.3.4 will be revised to state that retained fish will be wrapped in foil, as described in SOP 04. All SMB processing will be performed on the larger primary research

vessel. If SMB are caught on the smaller jon boat, they will be transferred to the larger researcher vessel for processing.

10. Appendix A, Standard Operating Procedure (SOP) – 05, Recording Sample Collection Locations and Appendix B, Specimen Tally and Location Form: The SOP states that the water depth of sample will be collected, and the Specimen Tally and Location Form contains a place to record the depth to mudline. The revised FSP must include a description of the requirement and methods to be used to record the water depth. The sentence at the bottom of page 1 that states "A position will be recorded electronically at each location where plant tissues and soil are collected" must be changed to "A position will be recorded electronically at each location that smallmouth bass are collected." It must also be clarified in the main text that the capture location of each smallmouth bass will be recorded.

Pre-RD AOC Group Response: SOP 05 will be updated to say that water depth of the sampling location will be recorded using the research vessel's depth transducer, when available. In shallow water, a visual estimate or lead line measurement of depth may be used. SOP 05 text will also be changed from "plant tissues and soils" to "smallmouth bass." Per response to To Be Considered Comment #3, Section 4.2 of the FSP will be revised to clarify that the capture location of each smallmouth bass sample will be recorded.

11. Appendix A, SOP-07. Several references are made to dry ice and shipping, including a suggestion that the dry ice "always be overestimated." Shipping regulations have maximum allowable limits (e.g., 200 kg) and specific labeling and documentation requirements. The shipment must be prepared by an employee trained in the Dangerous Goods regulations. These need to be referenced or included in this SOP. Additional information regarding international shipping to SGS Axys Analytical Services in British Columbia, Canada also needs to be included in the FSP or the SOP.

Pre-RD AOC Group Response: SOP 07 will be updated to add the four-page "Fed Ex Shipping Dry Ice" job aid. Text will also be added to state that "Staff responsible for shipping samples on dry ice will be trained in Dangerous Goods regulations. Staff will also contact FedEx International Customer Service at 1-800-463-3339 prior to packaging samples to determine to most up-to-date regulations for shipping samples to British Columbia, Canada."

12. A health and safety plan (HASP) or addendum specific to the fish tissue sampling must be included as an attachment to the FSP. The *Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Programmatic HAZWOPER Health and Safety Plan* (AECOM and Geosyntec 2018b) states that "Because study area-specific sampling locations, methods, media, and other detailed information are to be developed for each study, safety procedures specific to that field study will be documented as an addendum to this Programmatic HASP. Each HASP Addendum will be included as an attachment to the FSP prepared for the proposed field activity." The HASP must cover fish tissue sampling-specific activity hazard analysis, safety and spill equipment, emergency procedures, and contact information.

Pre-RD AOC Group Response: A HASP addendum task hazard analysis (THA) will be developed for each unique field activity and attached as an addendum to the project HASP. The THA will be provided to EPA a minimum of one week prior to the start of field work.

13. While it is justified to utilize methods consistent with previous EPA-approved sampling plans, this FSP must serve as a stand-alone reference in the field. Accordingly, all appropriate details related to sample collection procedures must be provided in Section 4 of the FSP, and current standard operating procedures (SOPs) must

be provided as an appendix. Referencing previous field sampling plans, such as the 2011 *Baseline Smallmouth Bass Tissue Study* (GSI Water Solutions, Inc. [GSI] 2011) and 2012 *Modifications to the Field Sampling Plan for Bass Tissue* (Windward Environmental 2012) is not sufficient, and may potentially lead to confusion in instances where sampling procedures presented in previous documents are different than those in the FSP.

Pre-RD AOC Group Response: As per discussions between the Pre-RD AOC Group and EPA during Administrative Settlement and Agreement Order on Consent (ASAOC) negotiations, the FSP utilizes previously-approved FSPs and SOPs for the Portland Harbor Superfund Site (the Site) to streamline the review and approval process. The Pre-RD AOC Group appreciates EPA's concern for potential inconsistencies or confusion for field staff. Any planned variance from procedures or methods described in the referenced documents are provided in the FSP. As such, the Fish Tissue FSP includes all the information necessary for the field sampling and serves as a stand-alone reference. Consistency with previous sampling plans was noted for context.

14. Section 4.3.3, page 7: The integrity of the study design is premised on collecting sufficient sample numbers in areas spread throughout the site, so contingencies should be in place that prioritize that goal. Contingencies should be added to fish additional areas if re-visiting stations is not productive. Please add a contingency that if revisiting the pre-selected stations is not successful, then fishers should sample throughout river mile sides that are under-represented in terms of the numbers of fish caught at that point in the collection effort.

Pre-RD AOC Group Response: Inserted "If fishing effort is unproductive at a planned sampling location during the second visit, the field crew will select an alternate sampling location in under-represented areas to maintain targeted spatial distribution of collected samples and ensure sampling is sufficiently spread throughout the four segments of the PHSS and D/U Reach, and each side is properly represented."

To be Considered Comments

1. Section 2.5, page 3: The field campaign for fish tissue collection appears to be planned for August-September 2018, 5 months into the fish tracking study (April 2018 – March 2019). Removing up to 10 (out of 40 total) tagged fish for fish tissue sampling for 7 months of the 12-month fish tracking study would significantly reduce the tagged fish population and is considered a last resort. Preferably, tagged fish will be returned to the river, noting in field notes which tagged fish were caught. Instead of sacrificing tagged fish, areas of the site that are not currently slated to be fished should be fished to obtain sufficient fish numbers. That contingency maintains the DQOs of the fish sampling and tracking efforts. If tagged fish will be sampled then the FSP should include a protocol for the acoustic tracking team to immediately capture additional fish and re-implant tags.

Pre-RD AOC Group Response: The rationale for retaining a tagged fish for chemistry tissue analysis is to provide empirical data on tissue concentrations that can be related to sediment exposure history on a spatial and temporal basis. This potential data use was raised by Karl Gustavson during early discussion of the fish tracking study. However, the Pre-RD AOC Group is agreeable to not sacrificing any tagged fish caught during August-September SMB sampling study, and simply documenting capture location and returning the fish to the river.

2. Section 3.2.1, page 5: This section, Coordination with EPA, specifies that the EPA Project Manager will be notified 1 to 2 weeks before beginning any field activities to allow EPA to schedule oversight activities. The revised FSP should state that EPA will be notified 8 to 12 business days prior to beginning site activities unless otherwise approved by EPA.

Pre-RD AOC Group Response: Consistent with the notification timeframes in the other FSPs for this PDI, the text will be revised to state that EPA will be notified a minimum of one week prior to the start of field work.

3. Section 4.2, page 6. The current text describes positioning of the sampling vessel to within 1 to 2 meters. The section on positioning and the FSP in general should permit professional judgement to be used to determine exact fishing locations. For example, it should not be misconstrued that anglers have to anchor and fish within 1-2 m of a precise location while not fishing a productive area 20 meters away. Such flexibility is likely intended by the FSP, but perhaps those expectations should be clarified. Emphasis should be placed on capturing the proposed number of fish from locations distributed throughout the site and in the DR/UR, less on the number of meters from the proposed location. In this regard, the fishers should have flexibility to fish the area, but be required to document the coordinates of fish capture.

Pre-RD AOC Group Response: Section 4.2 of the FSP has been revised to add “Once positioned at a planned sampling location, SMB angling specialists and fisheries biologists will determine fishing spots based on specific habitat preferences for SMB and angler expertise. The intent is to focus on fishing in spots with a high probability to capture SMB while still maintaining distribution of sampling locations throughout the PHSS and D/U Reach. The fish sample collection locations will be recorded.”

4. Section 5, page 8: This section, Laboratory Analysis, states that “Laboratory methods, QA [quality assurance] procedures, and QA/QC [quality assurance/quality control] requirements for the sampling are generally equivalent to the LWG protocols for tissue chemistry described in Round 3B Field Sampling Plan for Fish and Invertebrate Tissue and Collocated Surface Sediment.” It is unclear if field personnel are expected to consult this Round 3B FSP for additional details. If not, the statement should be removed. If so, the relevant information from that FSP should be included in the Fish Tissue FSP.

Pre-RD AOC Group Response: The following statement will be deleted, “Laboratory methods, quality assurance (QA) procedures, and quality assurance/quality controls (QA/QC) requirements for the sampling are generally equivalent to the LWG protocols for tissue chemistry described in Round 3B Field Sampling Plan for Fish and Invertebrate Tissue and Collocated Surface Sediment.”

5. Appendix A, SOP-01, Scope and Applicability: The SOP’s purpose is described as providing procedures for “decontaminating ... equipment contaminated by inorganic materials.” Please confirm that the procedures are also suitable for contamination from organic materials.

Pre-RD AOC Group Response: Yes, this statement applies to both inorganic and organic materials. The SOP text will be revised for clarity.

6. Appendix A, SOP-02, page 2, Camera Use: For clarity, the SOP should state that each individual sample and each sample location will be photographed. A minimum of three photographs of each field sampling technique should also be photographed.

Pre-RD AOC Group Response: The SOP text will be revised as suggested.

7. Appendix A, SOP-02, page 3, Key Checks and Items: For clarity the term “data log” in the 5th bullet should be replaced with “Specimen Tally and Location Form, and Photo Log”.

Pre-RD AOC Group Response: The SOP text will be revised as suggested.

8. Appendix A, SOP-03, page 1, Field Logbooks: This section indicates that the only mandatory information to record is deviations from the project-specific field sampling plan. Other information listed as “maybe included” should also be required, as applicable.

Pre-RD AOC Group Response: The word “may” will be changed to “should.”

9. Appendix A, SOP-03, page 2, Field Logbooks: The final bullet states that logbooks will be scanned “when field activity is complete.” It is unclear what “field activity” means – individual days or the project. We recommend scanning on a daily or minimum weekly basis, in the event that books are lost or damaged. The same comment applies regarding frequency of electronic scanning in the later section on “Distribution of Copies”.

Pre-RD AOC Group Response: The SOP text will be revised to state that logbooks will be photographed daily and copied or scanned weekly, and backups of data will be generated as specified in the Data Quality Management Plan.

10. Appendix A, SOP-03, pages 2-3, Field Forms: The bulleted list of information to be included on field forms does not match the field forms provided in Appendix B, and should be revised accordingly. Also, the GPS location verification information should be explicitly noted daily in the field logbook or on a field form.

Pre-RD AOC Group Response: The SOP text will be revised as suggested.

11. Appendix A, SOP-04, page 2, Fish Processing and Identification, paragraph 2: The second paragraph ends with the statement “...and a general fish health examination will be conducted.” The minimum requirements of this examination, and what points should be documented (e.g., presence/absence of lesions; gill condition) need to be specified. A separate form should be considered to record this information for fish samples that require more description than can be included in the “Comments” column on the Specimen Tally and Location Form.

Pre-RD AOC Group Response: The SOP text will be revised as suggested.

12. Appendix A, SOP-05, page 1, Positioning System Verification: GPS accuracy verification shall be conducted at least daily and performed in accordance with equipment manufacturer recommendations.

Pre-RD AOC Group Response: The SOP text will be revised as suggested.

13. Appendix A, SOP-05, page 1, Station Location Procedures: This section states, “A position will be recorded electronically at each location where plant tissues and soil are collected”. Fish samples are not mentioned. This statement should be updated to be more general, such as “A position will be recorded electronically at each location where samples are collected”.

Pre-RD AOC Group Response: The SOP text will be revised as suggested.

14. Appendix B: The field forms included in this appendix appear generic and should be revised to more closely match the FSP.

Pre-RD AOC Group Response: The field forms will be revised as suggested.

Matters of Style Comments

1. A project team organization chart should be included in the FSP to clarify project team roles and responsibilities. The organization chart should describe the certifications people hold and the work they will perform.

Pre-RD AOC Group Response: Section 3.1 of the FSP identifies the team member roles and responsibilities. The overall project organization chart will be included in the QAPP.

2. Appendix A, SOP 02, page 1: In the equipment and materials list “Black-ink pen” should be replaced with “Black waterproof pen” or similar. Additionally, “Field forms” is on the list twice.

Pre-RD AOC Group Response: The SOP text will be revised as suggested.

3. Appendix A, SOP-04, page 1, Equipment and Materials: The anesthetic MS2-222 referenced on page 2 in the SOP should be added to the list.

Pre-RD AOC Group Response: The SOP text will be revised as suggested.

4. Appendix A, SOP-05, pages 1-2, Station Location Procedures: This section states, “A position will be recorded electronically at each location where plant tissues and soil are collected”. Fish samples are not mentioned. This statement should be updated to be more general, such as “A position will be recorded electronically at each location where samples are collected”. This section also states that logbook entries “may include” a number of items but specifies no required entries. The minimum level of required information should be specified.

Pre-RD AOC Group Response: The SOP text will be revised as suggested. The word “may” will be changed to “should.” The minimum level of required information will be noted as discussed in previous comments.

5. Appendix A, SOP-06, page 1, Sample Labels: The format for the date and time needs to be specified, for example, YYYY-MM-DD and “24 hr, Pacific Time.”

Pre-RD AOC Group Response: The SOP text will be revised as suggested.

6. Appendix B, Photo Log: The fields on the photo log field form should be consistent with the items listed in the photograph documentation section of SOP-02 in Appendix A. To provide sufficient room on the form to describe habitat conditions, consider combining the last two columns as “Photo Notes and Comments” and increasing the row height.

Pre-RD AOC Group Response: The field form text will be revised as suggested.

References

- AECOM (AECOM Technical Services) and Geosyntec (Geosyntec Consultants, Inc.). 2018a. Quality Assurance Project Plan, Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling, Portland Harbor Superfund Site. January.
- . 2018b. Programmatic HAZWOPER Health and Safety Plan, Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling, Portland Harbor Superfund Site. January.

- GSI (GSI Water Solutions, Inc.). 2011. Sampling and Analysis Plan, Portland Harbor 2011 Baseline Smallmouth Bass Tissue Study. Prepared for EPA. September.
- Geosyntec. 2017. Portland Harbor Pre-Remedial Design Investigation Studies Work Plan. Portland Harbor Superfund Site. December.
- Windward Environmental. 2012. Portland Harbor RI/FS: 2012 Modifications to the Field Sampling Plan for Bass Tissue. Prepared for the Lower Willamette Group, Portland, Oregon.